

Notice of Allowability

Application No.

10/036,305

Examiner

Timothy L. Rude

Applicant(s)

SONG ET AL.

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2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to affidavit filed 19 December 2005.
2. ☒ The allowed claim(s) is/are 1,2,5,6,9 and 11.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

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DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submissions filed on 10 August 2005 and 06 September 2005 have been entered.

Applicant's affidavit filed 19 December 2005 has been favorably considered.

Claims and Claim Objections

Claims 5 and 6 are amended. Objections to claims 5 and 6 are withdrawn.

Allowable Subject Matter

Claims 1, 2, 5, 6, 9, and 11 are allowed.

The following is an examiner's statement of reasons for allowance:

As to base claims 1 and 9 relevant prior art of record did not disclose nor render obvious, alone or in combination, the process for manufacturing or the liquid crystal display device as claimed comprising: a B cell gap differentiated from an R cell gap or a G cell gap, the R cell gap indicates the thickness of the liquid crystal layer at the region of the red color filter, the G cell gap indicates the thickness of the liquid crystal layer at the region of the green color filter, and the B cell gap indicates the thickness of the liquid crystal layer at the region of the blue color filter, and wherein the B cell gap, the R cell gap and the G cell gap are differentiated from each other by: $R \text{ cell gap} - G \text{ cell gap} < G \text{ cell gap} - B \text{ cell gap}$, and wherein the first and the second opening patterns partition the pixel region into a plurality of micro-domains resulting in unexpected and synergistic advantageous properties per Applicant's Affidavit filed 19 December 2005.

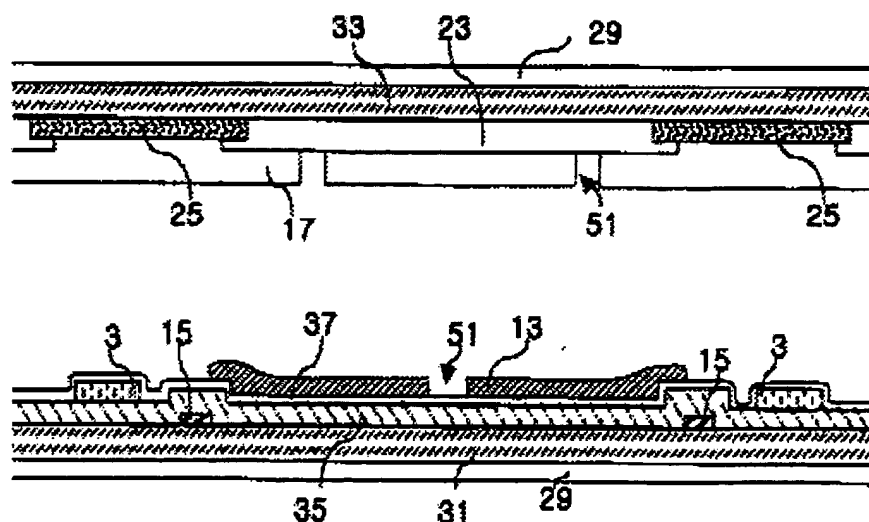
The closest combination is Kim et al (Kim) USPAT 6,462,798 B1 in view of Takao et al (Takao) USPAT 4,917,471.

Kim discloses in Figure 3C a liquid crystal display comprising: a first insulating substrate, 31; a gate line, 1 (Applicant's first wiring line), assembly formed on the first insulating substrate with a plurality of first wiring lines; a data line, 3 (Applicant's second wiring line) assembly crossing over the first wiring line assembly with a plurality of second wiring lines while defining pixel regions (col. 3, lines 20-65), the second wiring line assembly being insulated, 35, from the first wiring line assembly; a pixel electrode, 13, formed at each pixel region with a first opening pattern; a thin film transistor (col. 3, lines 48-51) connected to the first wiring line assembly, the second wiring line assembly,

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and the pixel electrode; a second insulating substrate, 33, facing the first insulating substrate; color filters, 23, of red, green and blue formed on the second insulating substrate; a common electrode, 17, formed on the second insulating substrate with the color filters having a second opening pattern; and a liquid crystal layer (col. 3, lines 61-62) sandwiched between the first and the second insulating substrates with liquid crystal molecules, the liquid crystal molecules of the liquid crystal layer being vertically aligned (col. 6, lines 17-45) with respect to the, first and the second substrates when no electric field is applied between the pixel electrode and the common electrode, and wherein the first and the second opening patterns partition the pixel region into a plurality of microdomains (col. 3, lines 20-40).

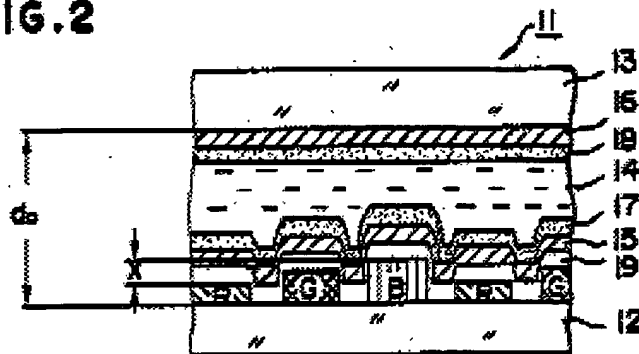
FIG. 3C



Kim does not explicitly disclose a display wherein a B cell gap is differentiated from an R cell gap or a G cell gap, the R cell gap indicates the thickness of the liquid crystal layer at the region of the red color filter, the G cell gap indicates the thickness of the liquid crystal layer at the region of the green color filter, and the B cell gap indicates the thickness of the liquid crystal layer at the region of the blue color filter, and wherein the B cell gap, the R cell gap and the G cell gap are differentiated from each other by: $R \text{ cell gap} - G \text{ cell gap} < G \text{ cell gap} - B \text{ cell gap}$.

Takao teaches a display in Figure 2 wherein a B cell gap is differentiated from an R cell gap or a G cell gap, the R cell gap indicates the thickness of the liquid crystal layer at the region of the red color filter, the G cell gap indicates the thickness of the liquid crystal layer at the region of the green color filter, and the B cell gap indicates the thickness of the liquid crystal layer at the region of the blue color filter, and that each color [including Green] layer thickness should be made as small as possible [col. 6, lines 3-6, resulting in Applicant's B cell gap, the R cell gap and the G cell gap are differentiated from each other by: $R \text{ cell gap} - G \text{ cell gap} < G \text{ cell gap} - B \text{ cell gap}$, because one would make the thickness of the G layer as close to that of the thinnest R layer as possible], in order to adjust the desired spectral characteristics (col. 4, line 65 through col. 7, line 7, especially col. 5, lines 46-49 and col. 5, lines 3-19).

FIG. 2



However, no prior art was found, with motivation to combine, that was considered to teach the claimed combination such that Applicant's unexpected and synergistic advantageous properties of Affidavit filed 19 December 2005 would have been known to one of ordinary skill without undue experimentation.

As to claims 2, 5, 6, and 11, they directly or indirectly depend from a claim with allowable subject matter above.


Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy L. Rude whose telephone number is (571) 272-2301. The examiner can normally be reached on Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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Timothy L Rude
Examiner
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